

JOHN SPELLMAN
Governor



055 0551

DONALD W. MOOS
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

File HW 922,

East 103 Indiana • Spokane, Washington 99207 • (509) 456-2926
June 19, 1981

Environmental Protection Agency
Region X
1200 Sixth Avenue, M/S 345
Seattle, WA 98101

RECEIVED

JUN 23 1981

SUPERVISOR

Attention: Ms. Carolyn B. Wilson

Re: Colbert Landfill Data Analysis

Dear Carolyn:

I am writing to provide our analysis of data generated by recent sampling at the Colbert Landfill and other area landfills. The objectives of the study as stated in my February 4, 1981, letter were:

- A. Resample wells near Colbert SLF exceeding SNARL levels to determine if any trends in volatile organics are occurring. Sample for extractables.
- B. Resample other nearby Colbert wells to check for spread of contaminants and presence of extractables.
- C. Add two nearby Colbert wells for volatile organics.
- D. Spot check wells near other landfills where like or similar materials may have been deposited.

The following sampling has been conducted with data received to this date:

10/13/80: (b)(6) wells for volatile organics and inorganic SWDA constituents. All inorganics have been run by the Wash-State Department of Social and Health Services laboratory in Seattle.

10/23/80: (b)(6), North Glen Estates, (b)(6) wells and King spring for volatile organics and inorganic constituents.

11/24/80: (b)(6) wells for volatile organics.

12/01/80: (b)(6) wells for volatile organics.

12/04/80: Wahoo Addition well for inorganic constituents.

12/09/80: Wahoo Addition well for volatile organics.

USEPA SF



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June 19, 1981

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Environmental Protection Agency, Region X
Attention: Ms. Carolyn B. Wilson

02/10 and Colbert - (b)(6) s wells
02/11/81: and King spring for volatile organics and organic extractables; (b)(6) wells for volatile organics.

Mica Landfill - (b)(6) well for volatile organics and organic extractables; Mica monitoring and Hidden Hollow Water District wells for volatile organics.

Closed Greenacres Landfill - (b)(6) well for volatile organics and extractable organics.

Northside City Landfill - "208" monitoring well for volatile organics and extractable organics.

A summary map for Colbert is enclosed.

DATA ANALYSIS

Colbert Landfill - It does not appear that extractable organic compounds are of concern at this time in wells near this landfill. There are low concentrations of extractables in some wells, but no trend is apparent.

The volatile organic compound 1,1,1-trichloroethane (TCE) appears to be the contaminant of concern at Colbert. Other volatile organics are present, but in much lower concentrations.

Recent sampling seems to indicate that TCE contamination is not spreading. The (b)(6) well shows a small increase, as does the King spring. It is conjectured that these small increases may be from sampling or analytical variables.

Some variability is shown in wells with high concentrations of TCE, but it is not clear whether or not any trends are occurring. The (b)(6) well has shown a slight decrease as has the (b)(6) well. The (b)(6) well has shown a slight increase, while the (b)(6) well has shown what appears to be a significant increase.

In summary, the contamination problem at the Colbert site currently is localized near the landfill, is restricted to TCE and apparently is not spreading.

June 19, 1981

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Environmental Protection Agency, Region X
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The table below summarizes Colbert data for TCE:

1,1,1-Trichloroethane Concentrations
(ug/l)

<u>Sample Date:</u>		<u>02/10/81</u>	<u>12/01/80</u>	<u>11/24/80</u>	<u>10/23/80</u>
<u>Sample Site</u>					
	Well	9400	NS	9625***	5300**
	Well	2100	NS	1400**	NS
	Well 1700	1576**	NS	NS Rhodes Well	
1080	1180*	NS	NS Armon Well		53
44	NS NS King Spring	33	NS	NS	14

NS/Not Sampled

*/avg. of two (2) values

**/avg. of three (3) values

***/avg. of four (4) values

Mica Landfill - A small amount of TCE is present in the landfill monitoring and Hidden Hollow Water District wells. These levels are well below the SNARL for TCE. [REDACTED] well showed trace amounts of four (4) extractables, but no volatile organics.

There does not appear to be significant ground water contamination in the wells sampled.

Northside City Landfill - Only one well was sampled at this location. Trace amounts of three (3) extractables were indicated as well as a small amount of TCE. No significant problem is apparent here.

Closed Greenacres Landfill - The [REDACTED] well, which is the only well near this site, has shown trace amounts of extractable organics and a mixture of volatile organics. The SNARL has been exceeded for tetrachloroethylene in water from this well. It should be noted that this well is not properly surface sealed, which may be partially responsible for the contamination present. It is also possible that the closed landfill is influencing water quality here. Without any other sampling points available, it is impossible to draw any definite conclusions.

June 19, 1981

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Environmental Protection Agency, Region X
Attention: Ms. Carolyn B. Wilson

Please feel free to contact me if you have any questions or comments regarding this data analysis. Your assistance in this study is very much appreciated.

Sincerely,

Jim
James L. Malm
Environmental Quality Division

JLM:adh

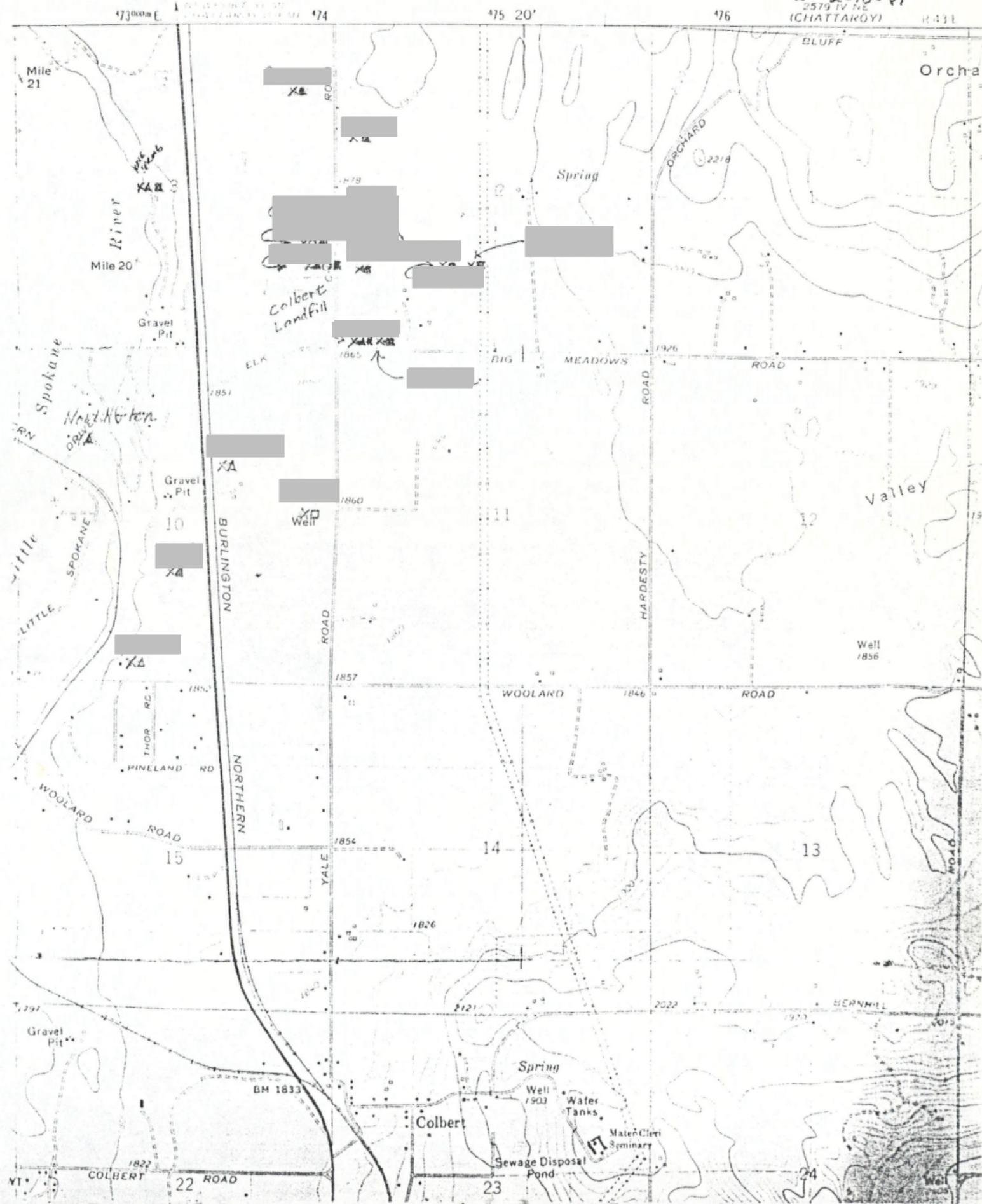
Enclosure

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Golbert Wells Sampled
(X = well location)

Dates Sample

A	10 - 19 - 80
A	10 - 23 - 80
O	11 - 24 - 80
E	12 - 1 - 80
W	12 - 9 - 80
	2 - 10 - 81
2579 IV NE	



April 24, 1981

Colbert Landfill Data

Ben Eusebio, Chief
Surveillance Branch

Chuck Findley, Chief
Waste Management Branch (M/S 529)

THRU: Gary L. O'Neal, Director
Surveillance & Analysis Division

Here are the final laboratory analytical results for the well water samplings conducted February 10 and 11, 1981 at the vicinity of Colbert Landfill site. Figures 1-4 include site plan and sample location information which should be helpful in evaluating the data.

Also included is Table 2 which shows both the SNARL (Suggested No Adverse Response Level) values and ambient water criteria for the organics we are reporting on. Note that comparing with the ambient water criteria, there appear to be no problems. However, compared with SNARL, it appears that we should be concerned with some well data. For example, 1,1,1-Trichloroethane, some well data values exceed the 1,000 micrograms/liter level. Another issue you should be aware of is the apparent discrepancy between the 0.00079 micrograms/liter ambient water criteria level for PCB-1260 compared to the detection limit of 0.015. I suggest that AHMD take the lead in calling a meeting to discuss these "criteria" related questions. Participants should include Drinking Water Program staff, Mike Watson, S&A, and Enforcement staff. It would be desirable to have such a group be aware of the problems created by Agency publication of "conflicting" criteria values.

Please call if you wish to discuss this memo.

Attachments

cc: Alex Smith
Arnold Gahler
John Barich
Carolyn Wilson (yellow) ✓
Dennis Stefani
Clark Gaulding
Bob Courson (w/o attachments)

Eusebio/fma 4-24-81

File:

Table 1
Concentrations in Water of Selected a/ Organic Compounds for Sampling Conducted February 10 and 11, 1981
(Units of Micrograms Per Liter)

	Well	208 Well	e Well	W Well	Spring	Well	Well	Well	Well	Mica Monitoring Well	Hidden Hollow Well
PESTICIDES											
PCB 1260	0.36 b/	--	--	--	NA	NA	NA	NA	NA	NA	NA
BASE NEUTRAL EXTRACTABLES											
Bis (2-Ethylhexyl) Phthalate	--	--	1	--	2	--	--	7	--	NA	NA
N-Butyl Benzyl Phthalate	4	7	1	--	--	--	--	--	--	NA	NA
Di-N-Butyl Phthalate	1	2	1	--	2	--	--	2	--	NA	NA
Di-N-Octyl Phthalate	--	--	--	--	1	--	--	--	--	NA	NA
Diethyl Phthalate	3	2	1	--	1	--	--	1	--	NA	NA
ACID COMPOUNDS											
	--	--	--	--	--	--	--	--	--	NA	NA
VOLATILE ORGANICS c/											
Tetrachloromethane (Carbon Tetrachloride)	--	--	--	--	--	--	--	3.3	--	--	--
1,2-Dichloroethane	10	--	--	3	--	--	5	3	4.3	--	--
1,1,1-Trichloroethane	--	25	--	9,400	33	1,700	2,100	53	1,080	42	40
1,1-Dichloroethane	--	--	--	55	--	64	80	--	43	--	--
Trichloromethane (Chloroform)	11	--	--	1.3	--	--	--	--	--	--	--
1,1-Dichloroethylene	--	--	--	380	--	--	--	--	--	--	--
1,2-Trans-Dichloroethylene	115	--	--	--	--	--	--	--	--	--	--
Dichloromethane (Methylene Chloride)	--	--	--	34	--	--	--	--	--	--	--
Dichlorobromomethane (Bromodichloromethane)	1.4	--	--	--	--	--	--	--	--	--	--
Tetrachloroethylene	23	--	--	--	--	--	--	--	--	--	--
Trichloroethylene	8.3	--	--	12	--	--	--	--	--	--	--

a/ This table is based on analyses by the Region 10 EPA Laboratory for organic "priority pollutants".

b/ No blank was available for comparison with this result.

c/ Volatile organics--Reported concentrations are gas chromatograph (GC) results.

-- Not detected (less than the detection limit).

over

Table 2

Criteria

	Ambient Water Criteria a/	SNARL b/
PCB 1260	.00079	
Bis (2-Ethylhexyl) Phthalate	15,000	
Di-N-Butyl Phthalate	34,000	
Diethyl Phthalate	350,000	
Tetrachloromethane (Carbon Tetrachloride)	4.0	
1,2-Dichloroethane	9.4	
1,1,1-Trichloroethane	18,400	1,000
Trichloromethane (Chloroform)	1.9	
1,1-Dichloroethylene	0.33	
Dichloromethane (Methylene Chloride)	1.9	
Dichlorobromomethane (Bromodichloromethane)	1.9	
Tetrachloroethylene	8.0	2.3
Trichloroethylene	27.0	

a/ Ambient water criteria--1 in 100,000 risk to humans from water and aquatic organisms if ingested over a lifetime. (Federal Register, Nov., 1980.)

b/ Suggested No Adverse Response Level (SNARL).

UNITED STATES
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GEOLOGICAL SURVEY

Fig. 4

Colbert

2519 IV NW
(DEER PARK)

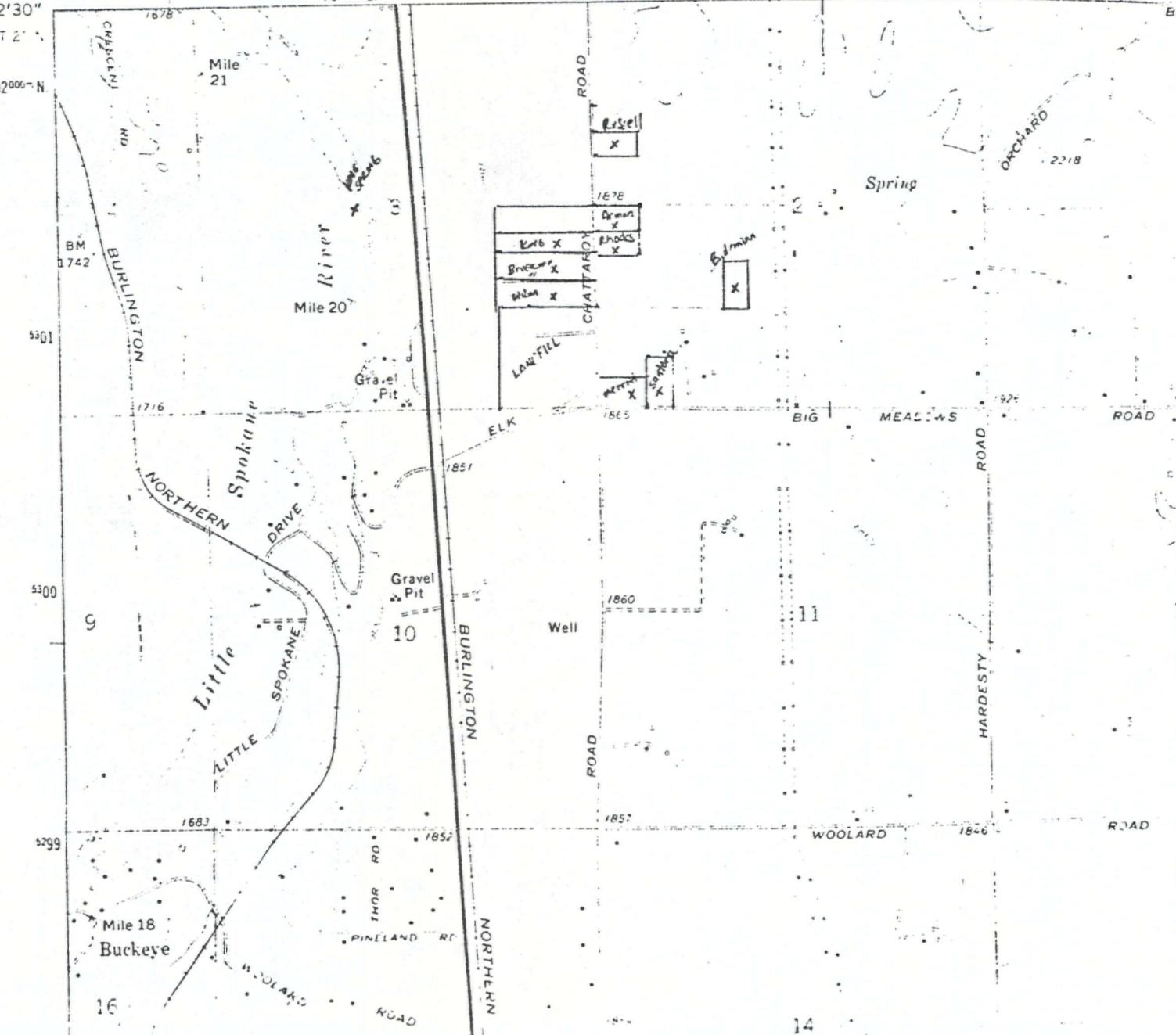
117°22'30"
47°52'30" []

473000m E. 1 NEARAPT 315
THATTAROY 027 474

475 20

47

2579 IV NE
(CHATTAROY)



WELL OWNER

PURGEABLE
VOLATILE
ORGANICS
($\mu\text{g/l}$)

*MCL I = Acute
 (ug/l) II = Short-Term
 III = Chronic
 IV = Taste and Odor
 (EPA SNARL)

* Maximum Contaminant Levels

GENERAL
MINERALS
(mg/l)

WELL OWNER

WELL OWNER	CATIONS (mg/l)										ANIONS (mg/l)										TESTS											
	Ammonia	Sodium	Potassium	Calcium	Magnesium	Total	Bicarbonate	Carbonate	Chloride	Sulfate	Nitrate (N)	Fluoride	Hydroxide	Total	pH (units)	Spec. Cond. (mho/cm)	Alkalinity (CaCO ₃)	TDS	Hardness total as CaCO ₃	Langlier Index	Turbidity (NTU)	Iron	Manganese	Copper	Zinc	Silica	Phosphate	MBAS				
	*MCL																															
	(mg/l)																															
Luckey Creek																																
COLBERT																																
	NA	4.4	4.4	38.5	12.5	3.25	191.4	.08	ND	3.2	ND	.5	0	3.23	7	300	157	164	147	NA	NR	4.6	.23	ND	ND	NA	NA					
	NA	11.3	4.4	72.4	16.6	5.6	261.9	.3	18	7	3.1	.1	0	5.19	7.4	512	215	260	250	.1	NA	ND	.016	.011	NO	NA	NA	NO				
	NA	6.5	4	83.3	23.4	6.5	326.5	.4	1.9	14	2.1	ND	0	5.85	7.4	550	268	298	306	.2	NA	ND	ND	ND	.38	NA	NA	.03				
Burlington No.																																
	NA	6.4	2.5	51.9	13.1	4.01	218.8	.40	1.1	8	1.6	.1	0	3.91	7.6	365	180	NA	183	NA	NA	.071	.023	ND	ND	NA	NA	NA				
	NA	11.1	3.2	22.9	8.2	2.38	135.3	.06	.4	2.7	ND	.28	0	2.30	7	230	111	120	90	NA	NA	5	.34	ND	ND	NA	NA	ND				
	NA	5.5	3.6	66.5	21.7	5.42	304.3	.35	10.4	5.9	1.4	.17	0	5.5	7.4	500	250	264	255	NA	NA	.03	.03	ND	ND	NA	NA	.03				
	NA	3.3	2.4	65	9.9	4.27	255.8	.3	1.9	16	.2	ND	0	4.58	7.4	420	210	210	204	0	NA	ND	ND	ND	.032	NA	NA	ND				
	NA	29.7	2.6	27	4.5	3.07	160.5	.29	2	10	ND	3.5	0	3.08	7.6	290	132	NA	84	NA	NA	.85	.13	.008	ND	NA	NA	ND				
Lt1. Spok. R., N.																																
	NA	4.4	1.6	22.4	5	1.76	87.4	.20	.4	3.4	.14	.15	0	1.53	7.7	178	72	NA	76	NA	NA	.13	.04	ND	ND	NA	NA	NA				
Lt1. Spok. R., S.																																
	NA	5.2	1.8	28.4	6.4	2.21	107.7	.05	1	5.5	.72	.06	0	1.99	7	220	90	NA	97	NA	NA	.2	.05	ND	ND	NA	NA	NA				
	NA	16.3	3.4	37.1	5	3.42	180.1	.26	.8	12	ND	1.1	0	3.28	7.5	326	148	NA	131	NA	NA	.72	.25	ND	.22	NA	NA	NA				
	NA	13.3	3.6	32.3	10.2	3.12	167	.07	ND	10	ND	.3	0	2.96	7	301	137	NA	122	NA	NA	5.7	.54	ND	.62	NA	NA	.03				
	NA	4.4	3.6	82	21.4	6.2	341.1	.4	.1	7	2.4	.1	0	5.93	7.4	551	280	298	317	.3	NA	ND	ND	.032	ND	NA	NA	ND				
	NA	3.1	2.5	32.4	10.1	2.87	176.9	.1	.4	7.2	ND	NA	0	3.06	7	300	145	147	123	-.7	NA	.23	NA	NA	NA	NA	NA					
	NA	2.8	4.9	54	17	4.3	255.7	.4	.8	14	ND	ND	0	4.51	7.5	400	210	200	203	+.1	NA	.13	ND	ND	.082	NA	NA	ND				
	NA	4.5	4	90	23	6.67	280.3	.3	7.1	24	19	ND	0	6.61	7.3	630	230	330	319	+.1	NA	.29	0.17	ND	.24	NA	NA	ND				
	NA	8.7	2.8	62.9	11.1	4.53	221.9	.2	2	12	.1	.2	0	4.0	7.2	415	182	205	204	-.1	NA	.044	.03	ND	.007	NA	NA	NA				
	NA	5.5	1.7	45	17	3.97	243.7	.3	1.3	4.8	.9	.5	0	4.2	7.4	380	200	210	184	0	NA	.17	.018	ND	.92	NA	NA	ND				
	NA	8.9	3.3	58.1	20.9	5.12	273.2	.1	2	15	3.2	ND	0	5.08	7	460	224	246	232	-.3	NA	.043	NA	NA	NA	NA	NA					
	NA	8.6	4.2	56.9	12.8	4.4	195.1	.1	5.2	9	7.3	.2	0	4.07	7.2	417	160	216	196	-.2	NA	ND	.015	.009	.01	NA	NA	ND				
	NA	4.9	4.5	92	35.2	7.8	444.7	.4	3.2	6.3	1.6	ND	0	7.63	7.3	680	365	386	424	-.4	NA	ND	ND	.013	ND	NA	NA	ND				
MICA																																
Hidden Hollow		NA	10.4	1	36.1	11.1	3.2	189.1	.7	1.5	3.63	NA	.41	0	3.23	6.9	290	155	154	135	NA	NA	.03	.07	ND	ND	NA	NA	NO			
Leachate Seep			NA	342	130	1250	225	125	6711.3	.3	500	47	ND	.5	0	125.09	6	7950	5500	6600	4063	-.9	NA	720	76	ND	.16	NA	NA	.23		
Meyer's Pond			NA	9.8	3.1	34.7	10.2	3.1	179	.1	1.2	5.2	.1	.35	0	3.1	7*	296	147	150	128	NA	NA	.49	.18	ND	ND	NA	NA	.04		
Mica Mon. Well																																
(b) (6)			NA	5.9	.9	48.1	13.2	3.7	194.9	.1	NA	.74	NA	.88	0	3.2	7.2	340	160	176	174	NA	NA	ND	.054	.01	ND	NA	NA	ND		
So. Pines Est.																																
W. Side Pond			NA	16	7.2	22.3	6.2	2.52	33	0	34	18	ND	.1	0	1.88	6.9	226	27	116	82	-.7	NA	2.7	.88	.055	.029	NA	NA	.02		

* Maximum Contaminant Levels

* pH was not measured but assumed tube 7.

COLBERT LANDFILL - SUPERFUND SITE

NEIL THOMPSON

1/28/82

WELL OWNER	Well Number	Aquifer	Sampling Date	Date Received by Lab.	Date Analysis Completed	TOC (mg/l)	PHENOL (mg/l)	Silver (Ag)	Arsenic (As)	Boron (B)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Mercury (Hg)	Manganese (Mn)	Nickel (Ni)	Lead (Pb)	Selenium (Se)	Zinc (Zn)	Cyanide (CN)			
						*MCL	*MCL	*MCL	(mg/l)	(mg/l)	(mg/l)														
						(mg/l)	(mg/l)	(mg/l)																	
COLBERT																									
US	12/15/81	12/17/81				0.45	.12	ND	8	NA	220	8	ND	ND	4600	ND	230	NA	4	ND	ND	ND			
US	12/16/81	12/18/81				0.43	.002	ND	ND	NA	120	ND	100	11	ND	ND	16	NA	4	NO	ND	NA			
US	12/9/81	12/10/81	12/23/81			0.24	.02	ND	ND	NA	140	ND	ND	ND	ND	ND	ND	ND	NA	4	ND	380	NA		
VS/LC																									
MS/LS	12/21/81	12/22/81	1/12/82			0.66	.03	ND	NA	NA	NA	ND	ND	NO	71	ND	23	NA	NA	NA	ND	NA			
MS	12/15/81	12/17/81				0.68	.15	ND	3	NA	190	ND	ND	ND	5600	ND	340	NA	ND	ND	ND	NA			
MS	12/15/81	12/17/81				0.30	.12	ND	6	NA	97	4	ND	ND	33	ND	32	NA	2	NO	ND	NA			
surface	12/9/81	12/10/81	12/22/81			0.54	.07	ND	ND	NA	90	ND	ND	NO	ND	ND	ND	NA	3	ND	32	NA			
G	12/16/81	12/18/81	1/7/82			0.33	1.0	ND	ND	NA	55	ND	42	8	850	ND	130	NA	ND	ND	ND	NA			
Lt. Spok. R., N.	surface	12/19/81	12/22/81	1/20/82		2.9	.004	ND	NA	NA	NA	ND	ND	ND	130	ND	35	NA	NA	NA	ND	NA			
Lt. Spok. R., S.	surface	12/19/81	12/22/81			3.3	.11	ND	NA	NA	NA	NO	ND	ND	200	2	46	NA	NA	NA	ND	NA			
G	12/19/81	12/22/81	1/12/82			3.0	1.0	ND	NA	NA	NA	NO	ND	ND	920	ND	250	NA	NA	NA	220	NA			
VC/LC	12/21/81	12/22/81	1/12/82			0.71	.054	ND	NA	NA	NA	ND	ND	ND	5700	ND	540	NA	NA	NA	620	NA			
VC	12/16/81	12/18/81				0.49	.006	ND	ND	NA	160	ND	ND	32	ND	ND	ND	NA	4	ND	ND	NA			
MS/LS	1/6/82	1/8/82				0.62	.02	NA																	
MS	12/9/81	12/10/81	12/22/81			7.3	.002	7	ND	NA	200	ND	ND	ND	130	NO	NO	NA	4	ND	82	NA			
	12/9/81	12/10/81	12/22/81			2.2	.002	ND	NO	NA	140	NO	NO	NO	290	ND	17	NA	5	ND	240	NA			
Sterling Spring	surface	12/21/81	12/23/81	1/12/82		0.59	.004	ND	NA	NA	NA	ND	ND	ND	44	ND	30	NA	NA	NA	7	NA			
MS/G	12/9/81	12/10/81	12/22/81			0.37	.02	ND	92	NA	690	NO	ND	ND	170	ND	18	NA	ND	ND	920	NA			
Wahoo Water Dist.	MS	1/6/82	1/8/82			0.26	.006	NA																	
US	12/15/81	12/17/81				0.43	.08	ND	3	NA	92	ND	ND	9	ND	ND	15	NA	4	ND	10	NA			
LS	12/10/81	12/19/81				0.21	.01	ND	ND	NA	160	ND	ND	13	ND	ND	ND	NA	5	2	ND	NA			
MICA																									
Hidden Hollow	12/10/81	12/15/81				0.63	.08	ND	2	NA	42	ND	ND	ND	30	ND	70	NA	3	1	ND	NA			
Leachate Seep	surface	12/21/81	12/23/81	1/20/82		3600	3.2	ND	NA	NA	NA	ND	ND	ND	720,000	ND	76000	NA	NA	NA	160	NA			
Meyer's Pond	surface	12/10/81	12/15/81			5.1	.1	ND	ND	NA	110	ND	ND	ND	490	ND	180	NA	2	ND	ND	NA			
Mica Mon. Well	(b) (6)	12/10/81	12/15/81			0.38	.07	ND	4	NA	32	NO	NO	10	ND	ND	54	NA	NO	1	ND	NA			
So. Pines Est.	W. Side Pond	surface	12/21/81	12/23/81	1/20/82	11	.024	ND	NA	NA	NA	ND	ND	55	2700	ND	880	NA	NA	NA	29	NA			
* Maximum Contaminant Levels																									

ND - not detected

NA - not analyzed

NA - not quantifiable

() - tentative